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SEISMOLOGY

Survey Earthquake Effects

A survey of the recent earthquake near Yellowstone National Park indicates that a great number of after-shocks may follow, representing a "real life hazard."

A SURVEY of the region of the earthquake that struck southern Montana west of Yellowstone National Park Aug. 17 has been made by Dr. Karl V. Steinbrugge, San Francisco seismologist. It shows that the effects it produced were outstanding.

Most spectacular was one of the largest landslides in the United States ever to have accompanied a historic shock, Dr. Steinbrugge found.

The slide, composed of an estimated 35,000,000 to 50,000,000 cubic yards of rock, killed perhaps 20 people who were camping in the Madison River valley below. This mile-long rock slide effectively dammed the Madison River, and a new lake rose behind it. Nature apparently did a good job in compacting the fill which makes up the new dam. The Army Engineers completed a spillway across it so that the water can discharge over the top without destroying the "quake dam."

The earthquake has been assigned the tentative magnitude of 7.1 by one authority and 7.8 by another.

The man-made Hebgen Dam, located about five miles upstream from "quake dam," is composed of an earth and rock

fill, except that it has a full height concrete wall running along its main axis or core wall. The concrete core wall settled very little, but the earth and rock around it settled up to six feet and contained fissures. Subsequent examination showed that, while damaged, the dam was still adequately safe.

Other effects, not so spectacular, are of considerable scientific interest.

About 15 miles of continuous ground breakage north of Hebgen Lake clearly implied vertical faulting, with the north shore of Hebgen Lake dropping with respect to the mountains nearby. South of the lake a small amount of vertical faulting was also noted. In all, there were many breaks, and the detailed pattern is complex. Some of the surface breaks formed cliffs which have been measured at 20 feet in height; these heights were considerably exaggerated by surface effects and should not be considered the amount of fault movement in the rock below.

The over-all effect of the faulting was to "tilt" the land block on which Hebgen Lake sits. The south shore went up eight feet or more, leaving docks out of water.

Conversely, the north shore sank perhaps up to the same amount. This sudden tilting of the lake bottom caused a water wave which conservatively has been reliably measured at three feet high in one place and undoubtedly was much higher in others. No doubt the waters of the lake "thrashed about" as was described by some persons.

Building damage was remarkably slight, considering the geologic and seismic evidences of a very strong shock. A number of log cabins as well as hollow unit masonry structures were within yards of the fault scarps, and these in general were not seriously damaged when not directly astride the scarp. Buildings across the fault were, of course, ruined. Masonry chimneys were generally, but not universally, damaged or destroyed. Some of the log cabins shifted on their foundations, but rarely did they go off their foundations. Some log buildings, located near the lake shore where lurching occurred, had broken concrete foundations. Masonry veneer fell from some buildings.

Bridges located in poor ground areas swung back and forth; in one case it swung at least 15 inches. This violent motion damaged the reinforced concrete supporting beams of several bridges.

Predicting future earthquakes as to time, location, and intensity is, at present, impossible. The entire region is geologically young, and destructive earthquakes have occurred in nearby regions. Certainly more shocks in Montana in future years may be expected.

Undoubtedly this earthquake was a "relieving" shock in the sense that accumulated strain was released. If this shock follows the patterns of other western American shocks, a great number of after-shocks may occur for a year or more, with their epicenters varying from the original epicenter. Some of these aftershocks could be of damaging intensity and represent a real life hazard.

Science News Letter, October 3, 1959

PHYSICS

Thermodynamics Aids Liquid Helium Production

See Front Cover

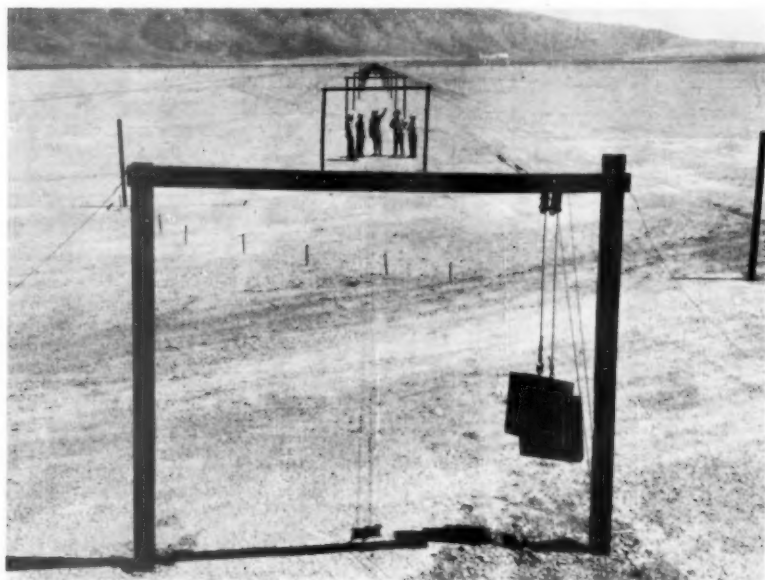
THE LEVEL of liquid hydrogen, used as pre-coolant in the liquefaction of helium, gives an indication of the total cost of producing the valuable liquid.

The photograph on the cover of this week's SCIENCE NEWS LETTER shows how an inclined manometer, in the window on the left, is used to measure liquid hydrogen heads.

The initial work in designing this engineering research tool, capable of putting out five gallons of liquid helium per hour, was done by D. B. Mann of the National Bureau of Standards' cryogenic engineering laboratory, Boulder, Colo., and by Prof. R. B. Stewart of the University of Colorado's mechanical engineering department.

Now comprehensive data on the properties of helium, essential in the art of handling the gas in its liquid form at 452 degrees below zero, is available.

Science News Letter, October 3, 1959



RADIO TELESCOPE—Thousand-pound lead weights keep two miles of transmission lines of the world's largest radio telescope taut at Clark Dry Lake in northeastern San Diego County, Calif. Radio signals from remote celestial objects are picked up by the grid of eight parallel rows of north-south dipole elements, spaced 1,443 feet apart along the east-west length of the transmission line. Convair built and operates the telescope.

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PSYCHOLOGY

New Method Tried for Handling Delinquents

AS AN EXPERIMENT, a new way of handling serious juvenile delinquents is to be tried out in Provo, Utah.

When a boy gets into trouble with the law, it is a mistake to pack him off to a reformatory or other "correctional" institution, David Hunter of the Ford Foundation indicated.

Authorities are coming to recognize that such punishment does not cure delinquency, he said. In fact, some reformatories serve as training centers for penitentiaries.

In this new experiment, the youthful offenders will be kept at home and kept in school. But for two hours daily, five days a week, they will meet as a group in rehabilitation sessions. There an attempt will be made to change the delinquent's standards and his attitudes. In addition, he will be helped with athletics, vocational training and, where necessary, remedial school work. An effort will be made to help the boy overcome the pressures that fostered his trouble with the law in the first place.

As part of the research financed by the Ford Foundation, a follow-up comparison will be made of the behavior of boys who participated in the program and those who had instead traditional probation or correctional procedures.

Science News Letter, October 3, 1959

MEDICINE

Brain May Be Sensitive to Radiation

THE BRAIN, once thought to be resistant to radiation, now appears to be radiation sensitive, report Drs. Thomas J. Haley and H. Gangloff of the nuclear medicine department of the University of California Medical School, Los Angeles.

They exposed experimental animals to radiation at dose levels of 200 and 400 roentgens. The 400 r level can lead to a 50% death rate, but the 200 r level is not normally fatal and usually results only in some radiation sickness.

Electroencephalograph recordings and other observations were made immediately following radiation exposure. Marked spontaneous abnormal electrical activity was

Questions

ENGINEERING—How long could strontium-90 be used as a source of electrical power? p. 215.

PHYSIOLOGY—What chemical is stored in large amounts by pregnant women? p. 217.

SEISMOLOGY—What is the estimated size of the rock slide occurring in the Montana earthquake? p. 211.

Photographs: Cover, National Bureau of Standards; p. 211, Convair-General Dynamics Corporation; p. 213, Information Office, Belgian Congo and Ruanda-Urundi; p. 215, Indiana University; p. 218, A. Schöles; p. 224, The Herbert Mart.

noted in certain brain areas at both dose levels. Transitory inability to sleep occurred shortly after radiation exposure.

It had been thought previously that brain cells were among the most resistant type of cells to radiation effects. The UCLA observations are among the first in this country indicating such marked sensitivity of brain cells to radiation. Some Russian scientists had previously suggested it.

These results suggest that even relatively low level radiation belts, such as 200 r, may pose a problem to space crews and troops under tactical nuclear weapons fire. Spontaneous brain electrical discharges and insomnia resulting from radiation effects might make such persons temporarily incapable of performing their duties.

Science News Letter, October 3, 1959

SCIENCE NEWS LETTER

VOL. 76 OCTOBER 3, 1959 NO. 14

Edited by WATSON DAVIS

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N St., N.W., Washington 6, D. C., North 7-2255. Cable Address: SCIENSERV.

Subscription rates: 1 yr., \$5.50; 2 yrs., \$10.00; 3 yrs., \$14.50; ten or more copies in one package to one address, 7½ cents per copy per week, single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

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Printed in U.S.A. Second class postage paid at Washington, D. C. Established in mimeograph form March 13, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Reader's Guide to Periodical Literature, Abridged Guide, and the Engineering Index. Member Audit Bureau of Circulation.

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PSYCHOLOGY

Monkey Can Communicate

ALTHOUGH monkeys cannot talk, one monkey is able to communicate useful information to another monkey.

The monkey does not use speech to share his secrets and just how he accomplishes it has not yet been studied. But results of the experiment showing that information is conveyed are reported in *Science* (Sept. 18) by Dr. William A. Mason, psychologist, who was at the University of Wisconsin when the study was made. Dr. Mason is now at the Yerkes Laboratories of Primate Biology, Orange Park, Fla. There he plans to repeat the experiment with chimpanzees.

In Dr. Mason's experiment, 18-month-old rhesus monkeys worked in pairs. Food was placed in one of a number of food carts mounted on fixed runways on a table between the cages of the two monkeys. One animal of each pair, called by Dr. Mason the "operator" had to pull in the loaded cart and then both animals were rewarded by the tasty morsels. During the trial, the food containers were so arranged that the operator could not see the food but his partner, the "informant," could. If the informant did not pass on this information to the operator, success in pulling in the right cart was reduced to the level of chance.

Then neither animal could eat much.

The informant did not give the information to his partner in any spoken language, Dr. Mason told *SCIENCE SERVICE*. Gestures were observed but were not recorded in this preliminary experiment. Barks and calls were also observed. One way the informant got across the information to his partner was by positioning his body opposite the food-loaded cart. The informant's position gave the operator the clue he needed and he pulled in the right cart. Then both animals ate.

To make sure that the operator was not acting on some cue other than those given him by his partner, each operator was given 48 control trials when the informant was not present. For every operator, without the help of the informant, performance dropped to chance levels.

After 480 trials, the operator and informant roles were reversed and the operator became the informant, the informant became operator. Although performance at the start of this second phase of the experiment was somewhat better than it had been at the beginning of the first phase of the experiment, the improvement was not statistically significant.

Science News Letter, October 3, 1959

OCEANOGRAPHY

Measure Gulf Heat

HOW MUCH heat the Gulf Stream gives off to Norway each year has been measured by a Norwegian scientist.

It is equal to the heat that would be produced by burning the amount of oil that could fill a 100,000-ton super-tanker every other minute for a full year.

This northernmost country in Europe is greatly benefited by the Gulf Stream, whose warm waters sweep along the western coast and keep harbors ice-free all winter long.

Dr. Hakon Mosby of the University of Bergen's Geophysical Institute made this approximation of Norway's indebtedness to the Gulf Stream largely from data collected at a weather station in the Norwegian Sea at 66 degrees north latitude and 2 degrees east longitude.

These data indicated that of the total heat loss from the surrounding waters, 34 kilocalories per square centimeter were given off to the atmosphere each year. (A kilocalorie is the amount of heat required to raise the temperature of one kilogram, or 2.2 pounds, of water one degree centigrade.)

This, Dr. Mosby said, was roughly equivalent to the heat combustion of a layer of oil a little more than one inch (three centimeters) thick over the whole area of the Norwegian Sea, about 390,000 square miles.

This is as much oil as could be contained in a 100,000-ton super-tanker if it

were loaded every other minute for a full year.

Comparable studies, he said, indicate that the Gulf Stream gives off in the Arctic Ocean only about one-fourth the heat it gives off in the Norwegian Sea.

In another study, Dr. Mosby, who is also president of the International Association of Physical Oceanography, the only international oceanographic organization, determined that it would take almost 100 years for a complete renewal of the water masses of the Norwegian Sea just through the rise of bottom water.

Science News Letter, October 3, 1959

CHEMISTRY

Well-Fed Microbes Make Important Enzyme

ELASTASE, an enzyme that may help control hardening of the arteries, can now be produced in quantity. The material has previously been available only in minute amounts, it was stated.

Feeding microbes on a diet of liver treated with a meat tenderizer produces the important enzyme, or body chemical regulator, in ample supply, Dr. Ines Mandl of the Columbia University College of Physicians and Surgeons reported to the American Chemical Society in Atlantic City. Until now elastase has been obtained from

hog and beef pancreas and from the glands of certain rare fish.

A more adequate supply should enable researchers to evaluate elastase for possible use in treating atherosclerosis, the biochemist pointed out.

Elastase is produced naturally in the human pancreas, but is occasionally found in short supply in the blood of older persons, Dr. Mandl said. Some biochemists think this enzyme shortage signals the approach of atherosclerosis or other diseases in which connective tissues harden.

Science News Letter, October 3, 1959

CHEMISTRY

ACS Grady Award to Science Service Head

WATSON DAVIS, director of *SCIENCE SERVICE* and editor of the *SCIENCE NEWS LETTER*, has won the American Chemical Society's James T. Grady Medal for 1960 to be presented in April at the Cleveland meeting.

The Society cited Mr. Davis' "outstanding contributions to public knowledge and understanding of chemistry and related fields" through his work as an editor, writer and broadcaster.

The Society also cited his "important role in promoting the recognition and encouragement of scientific talent among the nation's youth," as founder of Science Clubs of America, having a present membership of about 500,000, and as director of the National Science Fair and the Westinghouse Science Talent Search.

Science News Letter, October 3, 1959



CONGO ART—Scientists attending the Panafrican Congress of Prehistoric Times, in Leopoldville, the Belgian Congo, saw items dating from the 15th and 16th centuries. Vanden Bossche, Museum of Native Life, points to some exhibits.

COMMUNICATIONS

Add U.S.-Europe Cable

A NEW transatlantic telephone cable system will carry the voices of 36 persons at once over a thin wire only 13/100ths of an inch thick.

The deep-sea portion of the system consists of two cables, each spanning the 2,200-mile distance from Clarenville, Newfoundland, to Penmarch, France. One cable carries speech of 36 persons going to Europe, and the other cable carries the same amount coming from Europe.

The system links United States telephone networks with those of France, Germany, Belgium, The Netherlands, Switzerland and Italy. Through European points, 36 other areas and countries can be reached, the American Telephone and Telegraph Company, New York, reported.

The tiny copper heart of the cable is protected by insulation to withstand continual soaking in the Atlantic. Extra-heavy insulation on the shore ends adds protection against ship anchors and abrasion under influence of tides. The shore-end cable lengths are a little over three inches in diameter.

The deep-water cable section, sinking nearly three miles deep in places, is only

one and one-quarter inches in overall diameter.

The 36 conversations are kept separate by placing each on its own special carrier frequency. Later, AT&T intends to double the capacity of this cable system by using a device called TASI. Now under development, TASI will fill in "silences" in the first cable as the caller listens to what is coming to him over the second cable from his correspondent.

The new cable system almost exactly duplicates one system already linking the two continents. The first system, which goes to Scotland, was laid during 1955 and 1956. The new system was laid entirely this year. Deep-water laying began on March 14. Laying was halted once in the face of huge ice fields, and once when a cable ship caught fire on June 15.

Until 1956, when the first system went into operation, transoceanic telephone conversations were relayed to Europe via radio. But AT&T reports the radio bands are now so choked with activity that the company had to resort to cables. The new system is said to have cost \$40,000,000.

Science News Letter, October 3, 1959

BOTANY

Study Giant Kelp

GIANT KELP plants along the coast of southern California, previously believed to grow only on a rocky bottom supplying firm anchorage to the sea floor, have been found also to grow extensively in thick silt and sand.

The relationship between this seaweed, *Macrocystis pyrifera*, and the sea floor was studied along a 30-mile stretch of coastline near Santa Barbara, where the bottom geology is known in detail.

Throughout approximately 60% of the total area of the beds, the kelp plants were found to grow entirely in unconsolidated fine sediment of recent geologic age, varying in thickness from six to 100 feet.

The seaward portion of each bed was on thick, fine sediment. It contained the largest individual plants and densest plant concentration. The shoreward portion, however, was found to lie on a nearly exposed rock bottom and to include sparsely distributed plants of small size, due to the vigorous wave and current action and shifting sand occurring in the adjacent surf zone.

The method of attachment and shape of "holdfast" by which the kelp anchored itself, vary with the composition of the sea floor. In areas of thick, fine sediment, anchorage is achieved by burial of spherical or vertically elongated holdfasts. In contrast, holdfasts attached to rocky bottoms are tabular, conical or irregular in shape and wrap themselves around rock formations.

Discovery of kelp attachments in soft

bottoms, according to Dr. Warren C. Thompson of the U. S. Naval Postgraduate School, Monterey, Calif., raises questions of biological and geological significance.

He told marine scientists attending the International Oceanographic Congress that the classification of *Macrocystis* into species, for example, which has been based primarily on the character of the holdfast, should perhaps be reviewed again.

This comparatively recent discovery in southern California, where kelp beds have been studied intensively for nearly 50 years, he said, suggests that the attachment of *Macrocystis pyrifera* in fine sediment will be found to occur in other parts of its widespread range.

In another paper on the giant kelp, Wheeler J. North, Institute of Marine Resources, University of California, La Jolla, told the Congress that water clarity may influence the kelp's replacement potential.

Because the kelp plants anchor themselves on the bottom, extend upward, and spread horizontally at the surface, he said, the adult plant should be relatively immune to temporary changes in water clarity. This is reasonable since the plant is able to maintain up to 60% of its photosynthetic tissue at the surface.

However, he said, because young plants germinate and develop on the bottom and because adult plants are frequently lost in storms, the clarity of the water is of great importance.

Notable and apparently permanent dis-

appearance of kelp beds have occurred, Mr. North said, in areas where sewage is discharged through ocean outfalls. Increased turbidity introduced into the water by the outfall may be important in causing this disappearance.

Transplants of young and adult kelps into such areas succeed, he said, when located sufficiently shallowly to provide adequate light and when placed in cages to afford protection from grazers.

Science News Letter, October 3, 1959

ASTRONAUTICS

Satellite's Lifetime Cut By Moon's Field

THE LIFETIME of the recently launched "paddle-wheel" satellite, powered by solar batteries, will be reduced to only two years, due to effects of the moon's gravitational field.

Without this lunar effect, Explorer VI would stay in orbit more than 20 years, Dr. Yoshihide Kozai of the Smithsonian Astrophysical Observatory, Cambridge, Mass., has calculated. Astronomers call the irregularities in the motion or orbit of a heavenly body caused by some force other than that determining its usual path "perturbations."

Since Explorer VI's orbit takes it out more than 25,000 miles from the earth at its farthest point, or apogee, the satellite's motion is affected by the moon. This, in turn, will affect the perigee, or lowest point to earth in its orbit, drawing the satellite down into the earth's atmosphere and thus significantly increasing the drag. The moon's average distance from the earth is about 240,000 miles.

Explorer VI is the first earth satellite to have its orbit appreciably perturbed by the moon. The sun's attraction adds a small contribution to the shortening of this object's lifetime. Dr. Charles A. Whitney, also of the Smithsonian Astrophysical Observatory, performed the detailed numerical calculations of Dr. Kozai's perturbation equations using a high speed electronic computer.

Science News Letter, October 3, 1959

BOTANY

Alaskan Valley Reveals Earth's Plant Growth

HOW the earth's plant life grew and developed may be revealed in the regrowth of plant life in an Alaskan valley where a volcanic eruption had destroyed all trace of life.

About 50 years ago the Valley of Ten Thousand Smokes was covered completely with debris and hot ashes by one of history's greatest volcanic eruptions. All trace of life was destroyed. An area was thus created that was considered quite comparable to the ancient surface of the earth before the most primitive forms of plant life first appeared.

A report on how plant life started to reassert itself amid the smoking desolation, and how it has developed during the interim years, has been published by the Smithsonian Institution.

Science News Letter, October 3, 1959

ENGINEERING

Strontium-90 for Power

THE USE of strontium-90 as a long-lasting source of electricity for remote stations all over the world has been predicted.

Radioisotopes are a promising source of electrical power, Dr. Jerome G. Morse of The Martin Company's nuclear division, Baltimore, Md., told scientists at the Third Industrial Nuclear Technology Conference meeting in Chicago. Fuel for remote, unmanned operations is one suggested use.

Radioisotope-fueled power plants can be designed to deliver a predetermined power output for long periods of time.

Describing the Martin Company's strontium-90 power program, Dr. Morse said that this radioisotope can be converted to a useful form of power generation by using it in heat generators. With a half-life of 28 years, strontium-90 would be a power source that would not "materially decrease over a five- to eight-year period."

An experimental design and development program has been started to yield a completely safe yet reliable and maintenance-free power source, Dr. Morse said. Both land and sea versions of a power generator capable of producing 100 watts of electrical energy were designed.

The land-based unit is expected to operate at an efficiency of five percent minimum, while the marine generator will have an estimated eight percent efficiency. This is due to superior heat dissipation by water, the scientist explained.

A central core of strontium-90, compounded into a material having the lowest possible solubility in hot or cold sea or fresh water, would be encased in a "suitable

metal container." This container, Dr. Morse said, would be designed to provide the best possible protection against corrosion, thermal and physical shock and melting. An electrical conversion system, using thermoelectric materials, would have to be designed to match the long life of the strontium-90.

The strontium-90 heat element would have to be in such a form that "ingestion or absorption by organic life is impossible under any conceivable conditions," Dr. Morse warned. Biologic shielding would protect human life from the radiation field.

Science News Letter, October 3, 1959

MEDICINE

Osteoarthritis Is Rare In Alaskan Eskimo Men

ONE TYPE of arthritis is not as prevalent among Alaskan Eskimo men as it is among other American males.

Despite the cold and snow of the north, osteoarthritis, which causes stiffness and pain in the joints but does not cripple, occurs less in Eskimo males than in other American males of the same age.

This was reported by Drs. Baruch Blumberg, Kurt Bloch and Joseph Bunim of the National Institute of Arthritis and Metabolic Diseases. They presented the results of their studies at the Pan American Congress of Rheumatic Diseases meeting in Bethesda, Md.

A study of three Eskimo villages revealed that osteoarthritis was less common among

male villagers. The women, however, were found to be as prone to this type of arthritis as any other American woman.

In addition, the inhabitants of Wainwright, an Eskimo village on the Arctic Ocean coast, were studied. Blood samples and X-rays of the Eskimos' joints were taken to help diagnose cases of definite or probable rheumatoid arthritis. This type of arthritis is extremely painful and causes severe crippling.

Among 211 villagers, two cases of rheumatoid arthritis were found. Both cases were discovered in women who were over 50 years of age.

It is difficult to compute an accurate prevalence figure for rheumatoid arthritis in elderly Eskimos, since very few live past middle age, Dr. Blumberg pointed out. Furthermore, little is known about the prevalence of this type of arthritis throughout the population of the world, as very few studies have been made to date.

However, rheumatoid arthritis appears to be as common among Eskimos as among other Americans. Eskimo men tend to do more manual labor. Hence, they use their hands for heavy work more than the average American, the doctors said.

This study was undertaken to determine if geographical area might affect the rate of occurrence of arthritis.

Science News Letter, October 3, 1959

BACTERIOLOGY

Arthritis Caused by "Staph" Found Rising

ARTHRITIS caused by the germ staphylococcus may be on the rise because of the appearance of staphylococcus strains resistant to penicillin.

This kind of arthritis was thought to have been licked by the widespread use of penicillin after World War II.

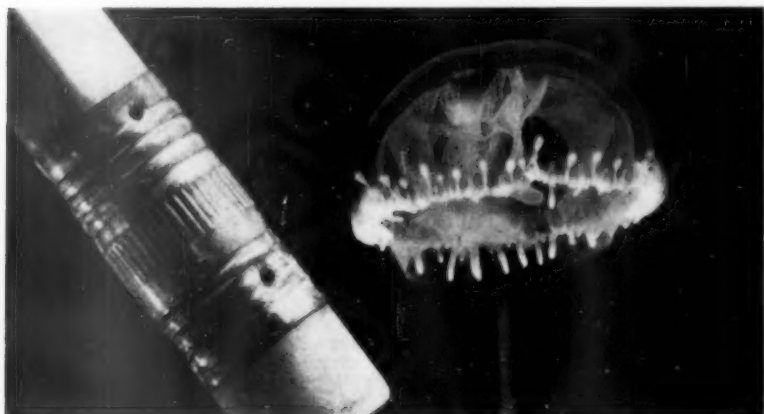
However, Drs. L. Myrton Gaines Jr. and Lawrence E. Shulman of Johns Hopkins University suggested this may no longer be the case. They reported results of a survey of germ-caused arthritis in Johns Hopkins Hospital between 1940 and 1958 at the Second Pan-American Congress on Rheumatic Diseases, held in conjunction with the American Rheumatism Association meeting in Washington.

Health officials have expressed concern about the growing problem of staphylococcal infections resistant to drugs, especially in hospitals. Rigorous precautions have been taken in many hospitals to guard against the spread of these organisms.

Drs. Gaines and Shulman reported that, in 53 cases of germ-induced arthritis found in the Johns Hopkins Hospital in the 18-year period, some were caused by streptococci and pneumococci but "the staphylococcus (hemolytic *Staphylococcus aureus*) was the most common offender." This organism is prevalent in hospitals and very resistant to antibiotics.

Staphylococcal arthritis affects all age groups and has an unusual propensity to involve the hip or knee, they said.

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JELLYFISH—Photographed by high-speed flash in an Indiana University zoology laboratory, a jellyfish swims past the end of a pencil. It is a member of the genus *Craspedacusta*, the only freshwater jellyfish in North America. They are found in a few lakes and ponds in Indiana and some other states. It travels by jet propulsion, as water is forced out behind by contraction of the bell-shaped body. Since they are one of the simplest of multicellular animals, the tiny jellyfish are proving a useful medium for research on zoological problems. They are thought to have come originally from China, and probably have been distributed as polyps (a microscopic, bud-like stage of their life cycle) in shipments of aquatic plants and tropical fish.

MEDICINE

"Brown Eyes" Feels Drill More Than "Blue Eyes"

A BROWN-EYED person will be "blue" on the next trip to the dentist to have a tooth filled.

An Australian scientist has discovered that more persons with brown or dark eyes feel the pain of the dental drill than persons with lighter colored irises.

Blue-eyed persons appear best able to endure the drill without the use of a pain killer, Philip R. N. Sutton of the dental school at the University of Melbourne, Australian, reports in *Nature* (July 11).

Very few of those whose irises were grayish-blue or greenish-gray needed analgesic. Continuing along the color scale, 13% of the subjects whose eyes were grayish-green, green or hazel required a pain reliever while 30% of the patients with light brown or brown did. More than 53% of those with dark brown eyes called for an analgesic.

Mr. Sutton examined 403 Australians of European descent whose teeth were being prepared for filling. All cavities were cut with a high-speed drill.

He based his conclusions on observations of at least 40 persons for each eye color except light brown, where there were only 11 subjects, 23 with brown and 28 with dark brown. He then retested 136 of the subjects.

Of these, the same values were obtained for the color of the eyes of 115 while the pain reaction was the same for 114 of these. The discrepancies were not considered to be significant.

The association between these factors is highly significant, but is considered to be due to their joint association with other factors, he concludes.

Science News Letter, October 3, 1959

GEOLOGY

Glaciers May Yield Clues On Rock Flows in Earth

GLACIAL FLOWS may provide scientists with better understanding of the massive movement of rock within the earth's crust.

Geologist Robert Sharp of the California Institute of Technology regards glacial ice as a special type of rock, composed of ice crystals.

In glacial movement, which can be anywhere from a few inches to several hundred feet a day, Dr. Sharp sees a speeded-up version of what is happening to large bodies of sub-surface rock. Normally, rock movement is too slow to observe.

While camping beside the Blue Glacier on the slope of Mount Olympus in the State of Washington, Dr. Sharp has said that scientists hope "to relate the formation of structures in glaciers to the formation of structures in rocks."

Dr. Sharp and his group are studying the lower one and one-eighth miles of the glacier. He estimates a minimum thickness of 100 to 150 feet is necessary for the weight of this section of the Blue Glacier ice to overcome its own rigidity and to start a

plastic flow down the slope. The section is 900 feet thick.

Polar glaciers are colder and more rigid. They require a greater ice burden to provide the necessary pressure for movement.

Glacial flow is measured in both horizontal and vertical directions. At Blue Glacier, 50 stakes have been placed into the surface. The changing patterns of the stakes reveal the directions of horizontal flow.

Four holes, drilled 400 to 750 feet deep, are deformed by vertical movements of the ice. The pattern is determined by measurements of inclinometers periodically lowered into the holes.

Dr. Sharp and a team of scientists from Caltech and the U. S. Geological Survey are working under a National Science Foundation grant. The research began in 1957 as part of the International Geophysical Year.

Science News Letter, October 3, 1959

PUBLIC SAFETY

Industry Goes Below In Case of Nuclear Attack

CONVERSION of mined-out areas to underground shelters for industrial plants and living accommodations for employees and their families was urged.

This would not only serve as a major protection against fallout in the event of a nuclear attack, but might even deter an enemy from making such an attack, an industrialist told the Society of Mining Engineers of the American Institute of Mining, Metallurgical and Petroleum Engineers meeting in Bedford Springs, Pa.

Russell W. Hunt, president of the Southwest Lime Company, described his company's achievements at its Neosho, Mo., mine, where a two-year reconstruction job has made 600,000 square feet available as a strategic storage center.

The work was planned, he said, to provide emergency shelter for the employees and their families, as well as most of the community.

Humidity control, exhaust fans, and a reservoir and deep well water have been provided at Neosho. Eight-inch reinforced concrete division walls are equipped with approved doors. Walls and ceiling are white to give maximum lighting and to improve appearance.

Commenting on his company's cooperation with the Defense Department, Mr. Hunt said preliminary investigations indicate that a small subsidy of the mining industry would make it possible to have underground space created "very cheaply."

The subsidy might be the additional cost per square foot of underground mining over open quarry mining, he suggested. This should be sufficient to change 20% to 30% of open quarrying to underground operations.

In any event, he said, the maximum probable cost involved in starting a program of underground facilities is small and "it is important to get a feel, as soon as possible, to see how successful a large program might be."

Science News Letter, October 3, 1959

IN SCIENCE

ASTRONAUTICS

Ask Radio Hams To Record Vanguard

AN APPEAL to the nation's thousands of radio "hams" to record broadcasts from Vanguard III, which was placed in orbit Sept. 18, has been made by the National Academy of Sciences.

Dr. Richard W. Porter of the space science board asked the American Radio Relay League to request members to record, where convenient and possible, radio signals transmitted from Vanguard III on a frequency of 108 megacycles. These tape recordings should be retained at least 48 hours.

In the event a solar flare occurs, the Academy will notify ARRL again, requesting that members send in their tapes made during that period. Notification should come within 48 hours.

Dr. Porter explained that help from radio "hams" is requested "in order to broaden the possibility of catching a solar flare at the right time, or catching certain parts of it that might not be caught by our Vanguard ground stations."

Dr. Porter is chairman of the Earth Satellite Technical Panel of the U.S.-International Geophysical Year program, under which the Vanguard III experiments were developed. He indicated scientists are particularly anxious to obtain tape recordings of transmissions that show effects of any solar flare that might occur when the satellite is below the Van Allen radiation belts.

Science News Letter, October 3, 1959

MINING

Must Protect Water From Mine Contamination

WATER, our most essential natural resource, must be protected from acid pollution from abandoned mines.

Natural oxidation of the sulfidic material associated with mining is the initial reaction responsible for this acidity, S. A. Braley of the Mellon Institute, Pittsburgh, told the Society of Mining Engineers of the American Institute of Mining, Metallurgical and Petroleum Engineers meeting in Bedford Springs, Pa.

Secondary reactions of the initially formed acid and acid salts with the earth and rock, he said, can produce mine discharges varying from high acid content to high alkali.

Because of the many factors involved, Mr. Braley said, there is no known universal, economical or practical method for the prevention of acid formation or for treatment after formation. However, there are "engineering procedures that may be used in specific cases to prevent or decrease the acid properties of mine discharges."

Science News Letter, October 3, 1959

CE FIELDS

TECHNOLOGY

World Satellite Picture Can Be Seen in Seconds

UP-TO-THE-MINUTE positions of all satellites circling the earth can be promptly seen on SPASCORE, a projection screen now being developed by the Naval Weapons Laboratory at the Government's satellite Surveillance Center, Dahlgren, Va.

By showing all satellites in their exact positions over a map of the world, the SPASCORE system presents visually what an electronic computer "thinks" as it calculates past, present or future satellite paths.

After computing the path of each satellite, the machine electronically tells a cathode ray tube (which resembles a television picture tube) where to make "blips" representing satellites. These blips then can be recorded on film that is developed in about 20 seconds and projected onto the translucent screen from the rear.

SPASCORE was one of many aids shown at The Business Equipment Exposition in Washington, D. C. Other new machines, chiefly designed for office use, include:

1. A mechanical bank clerk which, by examining characters printed in magnetic ink on checks, deposit slips and other documents, can sort a "tidal wave" of papers at the rate of 1,500 per minute.

2. An electronic linguist that can translate computer language into printed information at speeds of 20,000 characters a second. It can print pictures of moving objects that go by its special TV "eye". Thus it could "watch" railroad freight-car movements, recording car numbers and railroad designations as whole trains go by.

3. A portable punching and plastic binding unit that companies can use for attractively binding reports, statements and surveys.

Science News Letter, October 3, 1959

PSYCHOLOGY

Analysis of Play Steps Up Response

HAVING A STAGE play "analyzed" by a practicing psychoanalyst and revising it in accordance with the findings results in a production that is better received by the audience.

This was revealed when the same play before and after revision was presented with the same cast, costumes, lighting, sets and director before audiences matched for sex, age and theater-going experience. The play was "Table Number Seven," from Terence Rattigan's "Separate Tables."

The two audiences indicated their reactions by filling out questionnaires immediately after the performance. In addition, infrared pictures of the audience recorded signs of their interest and a recording on

tape preserved the applause and other noise made by them.

The services of the psychoanalyst changed a play which was "average" in interest into one judged to be from "somewhat above average" to "far above average."

The experiment was conducted under the auspices of the M-R (Motivation Research) Theatre and the Division of Communications of the University of Southern California. Oliver McGowan of the M-R Theatre originated the experiment and the data obtained were processed and reported by Dr. Jit L. Kapur, graduate student of the University. The psychoanalyst who took the play as a patient was Dr. Barnet Sharrin of Beverly Hills.

"It is possible," the report of the experiment pointed out, "that some other director, by intuition might have arrived at an interpretation as good as or better than the one given by the psychoanalyst. Still, even in such cases, a trained psychoanalyst might have provided the director with a short cut which might save valuable time in arriving at a valid interpretation."

Science News Letter, October 3, 1959

MEDICINE

Little Girl Suffers From Rare Male Blood Disease

A RARE CASE of hemophilia that usually occurs only in men has been reported in a little girl. With hemophilia, a person's blood does not clot readily and he may bleed to death from minor cuts or wounds.

The child, 16 months old, had always bruised easily. Doctors noted that her blood coagulated very slowly. In addition, she suffered from long bouts with nosebleeds. Prior to her birth, a brother had died with bleeding soon after his birth.

Her mother belonged to a hemophilic family. It is a well-known fact that females can carry this disease of the blood in their genes, and pass it to their sons. Seldom do daughters suffer, however, because the hereditary gene is recessive.

Laboratory findings of blood and skin tissue of this little girl were found to be identical with those obtainable in severe hemophilia A in males, four Swedish scientists report in *Lancet* (Sept. 5).

A study of the patient's chromosomes gave the investigators an explanation for the oddity. The girl did not have the usual female XX chromosome makeup. Instead, she probably has the male XY combination. Knowledge of the sex chromosomes is not yet sufficient to identify this combination as the certain cause, however, the scientists caution.

No exact determination of the child's sex can be made due to her age and the possibility that she is a hermaphrodite cannot be determined until she reaches sexual maturity, they pointed out. They also referred to four previous cases of hemophilia in females.

The investigators are Dr. Inga Marie Nilsson, Dr. S. Bergman, and Dr. J. Waldenstrom and J. Reitalu, all of the University of Lund, Sweden.

Science News Letter, October 3, 1959

MEDICINE

Immunize 50% Lab Animals Against Syphilis

A CRUDE VACCINE that immunized 50% of a group of laboratory animals against syphilis has been introduced.

The vaccine was developed by Dr. Albert N. Wheeler of the University of Michigan. He indicated future refinements will lead to a product that will offer even higher levels of protection against syphilis. Likewise, it could show the way toward worldwide protection against yaws, pinta, bejel and other syphilis-like diseases, he pointed out.

Dr. Wheeler has worked with the vaccine for more than one year, but he has not yet tested it on humans.

Syphilis is caused by a one-cell, corkscrew-shaped bacterium called *Treponema pallidum*. The bacterium's name means "pale thread" and refers to its appearance under the microscope.

Early experiments with a vaccine of killed whole bacteria proved unsuccessful but about a year ago Dr. Wheeler started a fresh approach with the aid of a three-year research grant from the venereal disease branch of the U. S. Public Health Service.

He began destroying quantities of the spirochetes by mechanical means and from the pulp he extracted fractions of proteins and carbohydrates. These fractions are crude mixtures of several types of proteins and carbohydrates rather than single purified units.

His results to date show that the protein fraction can provide complete immunization for 10% of the test animals and promotes strong resistance in an additional 40%.

Science News Letter, October 3, 1959

PHYSIOLOGY

Mother-to-Be Stores Large Amount of Fluoride

WHETHER or not she believes that fluoridation of water is beneficial, a pregnant woman is certain to store up an amazing amount of fluoride.

Recent data suggest that pregnant women store more fluoride during pregnancy and shortly thereafter than non-pregnant adult females and males, a review article in *Nutrition Reviews* (Sept.) points out.

Scientists do not know, however, just where this abundant supply goes, nor how it is distributed. It is suggested that it might nourish the maternal skeleton, the placenta and embryonic membranes and fetus.

The data on fluoride retention among pregnant women were obtained by studying a total of 196 healthy pregnant women in Jerusalem. They excreted lesser amounts of fluoride in their urine until they reached a plateau in the eighth month. This was followed by a slow increase during the ninth month. The fluoride concentration did not return to the pre-pregnancy level until two or three months after delivery. The concentration is not poisonous, the findings show.

Science News Letter, October 3, 1959

ZOOLOGY

Platypus: Bird, Beast and Reptile

One of the strangest animals known to scientists is the duckbill platypus. A "down-under" creature from Australia, the platypus is virtually unknown outside of its native land.

By BENITA TALL

BIRD, BEAST and reptile is exactly the right answer to give if anyone asks you what a platypus is.

At least it is the best answer if you want to describe what this strange animal looks like. With its duck bill, webbed feet, tail like a beaver's and venom spurs, the platypus seems inadequately described if you simply reply "beast; it's a mammal."

Found only in eastern Australia and Tasmania, this unique animal is rarely seen outside its native land.

There the platypus lives a quiet life, sleeping most of the day in its river bank burrow. During the night it hunts for its dinner: crayfish, shrimps, insect larvae, tadpoles and earthworms. Actually, its appetite has been a handicap to would-be platypus keepers. In captivity the animal is known to eat almost its own weight in earthworms in a single night! Since the platypus is quite particular in the food it will eat—it must be alive—this can be expensive as well as inconvenient. Several hundred wriggling earthworms and dozens of grubs per platypus is quite an order.

Special Home Needed

A platypus burrow may be as long as 30 feet, with a land entrance and a water entrance. The platypus's amphibian life—it is an excellent swimmer and can stay submerged for at least five minutes—has presented another problem in maintaining the animal outside its natural environment.

A special "platypusary" is required. This consists of a long swimming tank, burrowing bank (in which, hopefully, the female will sometime build a nest) and assorted burrows for living in. Generally, the platypusary attempts to duplicate the animal's river bank home. In the summer of 1947, three platypuses came to live in the New York Zoological Park's specially constructed platypusary in the Bronx Zoo—the only one known outside the one at Healesville, about 40 miles from Melbourne, Australia. It is at these two places that most people who wanted to see the strange creature could get their first look at the platypus. Now, unfortunately, the captive animals can only be seen in Australia. The Bronx Zoo's platypuses all have died and no others are known to exist in a zoo elsewhere in the world, save Australia.

It has a short, thick trunk and powerful limbs with webbed feet that can be used for digging as well as swimming. The nose and upper jaw of the platypus resemble a duck's bill; they are covered with a smooth hairless skin, black on the sur-

face and "creamy" color underneath. Its fur is short and velvety, dark brown in color.

(Years ago thousands of the animals were slaughtered for their pelts. They are now legally protected.)

The platypus is also unique among mammals in that the male possesses a poisoning apparatus. He has a spur on the ankle of each hind foot that connects with a venom gland. A wound from this spur can cause a painful swelling. The female has no such weapon. A full-grown platypus will average about two feet in length and weigh between two and four pounds.

About 1800 when a platypus skin arrived at the British Museum in London, scientists were very skeptical about the creature. The skin was soaked in water, the non-believers expecting to expose stitches holding the furred skin to the ducklike feet and beak. It was years later before it was accepted that the platypus also did lay eggs and did nurse its young as a "good mammal should."

Not too much is known about platypus

young. The female usually lays two eggs, sometimes three, about three-quarters of an inch long and a little more than one-half inch wide. They are not hard-shelled, but have a parchment-like covering similar to that of tortoise eggs. The nest is made of weeds, leaves and grass. The female apparently has all responsibility for the young: she digs the breeding burrow, makes the nest and incubates them without help from the male. Incubation takes about two to three weeks. When the young hatch they are dependent on the mother for several months. She holds them to her abdomen with her tail where the young obtain milk secreted in mammary glands by licking the fluid that exudes from the mother's pores.

These primitive egg-laying mammals have been bred in captivity only once. Towards the end of 1943 zoological history was made when Australia's David Fleay, known as the world's leading authority on the animals, announced a platypus had at last been bred at the Sanctuary in Healesville. This doubly unique animal was a female.

Ten years later, in 1953, the Bronx Zoo's platypuses Penelope and Cecil seemed about to become parents. In early July, Penelope developed a ravenous appetite. Eucalyptus leaves placed in her pool disappeared and this was taken as a good



PLATYPUSES TWO—The beaver-like tail and duck bill of the platypus makes this mammal one of the most extraordinary animals in the world today. The platypus, whose scientific name is *Ornithorhynchus anatinus*, is believed to be a possible link with mammals, birds, fishes and reptiles.

sign since the platypus is known to use these leaves to line its nest. The platypus where Cecil and Penelope were exhibited before the public was closed. Months later, Penelope was exposed as a fraud. Disappointed zoo officials found, after digging for six hours into her burrow, that no eggs had been laid. Penelope had enjoyed four months of extra delicacies, attention and undisturbed sleep.

Penelope was again the subject of much attention in 1957, only this time there was an unhappier ending. In July she disappeared, touching off the most extensive hunt in the Zoo's history. She never was found. Less than two months later, Cecil died. Romantics claimed it was because of a "broken heart," but Zoo officials believe it was probably of old age.

In June, 1958, two females and a male were flown in and the U. S. once more had platypuses at a cost of about \$7,000 to the New York Zoological Society. Despite the best care and attention, however, one female, Patty, died that November. The other two, Paul and Pamela, seemed healthy and strong. Zoo experts hoped the couple would break the Zoo's platypus record of ten years in captivity.

Altogether they have had seven platypuses since the first one seen outside Australia was exhibited in the summer of 1922. It lived only 49 days. Betty, Penelope and Cecil arrived next in 1947. Betty succumbed after exactly one year, four months and eleven days of living in the Bronx.

Despite the years of care and millions of earthworms showered on one of the world's strangest creatures, Bronx zookeepers have been unrewarded.

Paul died on Dec. 20, 1958, and Pamela lasted until March 25, 1959, when she was found dead in her sleeping burrow. Loneliness was discounted as a cause of Pamela's death. Zookeepers attributed it to old age.

As the world's foremost authority on platypuses, David Fleay has been investigating why these strange creatures are indigenous only to Australia. As yet no one has been able to explain this phenomenon. These studies are made with platypuses in captivity at the scientist's beautiful Fauna Reserve located at West Burleigh in Queensland, Australia.

Where attempts will be made again to keep platypuses in captivity outside of Australia is anyone's guess.

Science News Letter, October 3, 1959

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ENGINEERING AND INDUSTRIAL PSYCHOLOGY, Vol. 1, No. 1—Lee W. Cozan, Ed.—*Engineering & Industrial Psychology*, 29 p., paper, quarterly, single copies \$2, annual subscription \$7. Publishes original investigations dealing with

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ENGINEERING EDUCATION IN RUSSIA—Stephen P. Timoshenko—*McGraw*, 47 p., illus., \$2.75. Brief history of the development of Russian engineering education and description of its present status which, in the opinion of the author, has returned very nearly to the educational system which existed before the Communist revolution.

ENZYMES OF POLYNUCLEOTIDE METABOLISM—Jay S. Roth, Ed.—*N. Y. Acad. of Sciences, Annals*, Vol. 81, Art. 3, 293 p., illus., paper, \$5. Papers on ribonucleases, polynucleotide phosphorylases, structure and properties of synthetic polynucleotides and enzymes.

EXPLORING BIOLOGY: The Science of Living Things—Ella Thea Smith, Paul F. Brandwein, Ed.—*Harcourt*, 5th ed., 731 p., illus., \$5.20. High school course in biology with glossary, and fully indexed.

A FIELD GUIDE TO BIRD SONGS OF Eastern and Central North America arranged to accompany, page by page, Roger Tory Peterson's *A Field Guide to the Birds* (\$3.95)—Peter Paul Kellogg and Arthur A. Allen with Roger Tory Peterson—*Houghton*, 2 long-playing records, \$10. Songs and calls of more than 300 species of land and water birds recorded in the field by the Laboratory of Ornithology, Cornell University.

FOOD: The Yearbook of Agriculture 1959—Alfred Stefferud, Ed.—*U.S. Dept. of Agriculture (Govt. Print. Off.)*, 736 p., illus., \$2.25. Authoritative compendium of knowledge about nutrients, health and food needs, quality, costs, preparation and trends in food processing and consumption.

THE FREUDIAN ETHIC—Richard LaPiere—*Duell*, 299 p., \$5. Author analyzes the changing psychology of the American people and shows how and why they may be losing the very qualities that until now have made American society dynamic.

HERITAGE OF HAWAII: Bernice P. Bishop Museum Annual Report for 1958—Alexander Spoehr, Dir.—*Bishop Museum Press*, 34 p., illus., paper, single copies free upon request direct to publisher, Honolulu 17, Hawaii. Report on Museum's collections and scientific research programs.

HOW CHILDREN LEARN TO SPEAK—M. M. Lewis, introd. by A. D. Buchmueller—*Basic Bks.*, 144 p., \$3. British psychologist traces the pattern of development of baby's speech from the earliest sounds and cries to the mastery of mutually understood words.

IN THE DAYS OF THE DINOSAURS—Roy Chapman Andrews—*Random House*, 80 p., illus., by Jean Zallinger, \$1.95. Tells young readers many facts about the age of dinosaurs, including a hunt for fossils in the Gobi desert.

INTERNATIONAL REVIEW OF CYTOLOGY, Vol. VIII—G. H. Bourne and J. F. Danielli, Eds.—*Academic*, 541 p., illus., \$13. Contains papers on the structure of cytoplasm, on the cell surface of paramecium, the physiology of chromatophores and trace elements in cellular function.

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NIGHT-LIGHTING: A Technique for Capturing Birds and Mammals—Ronald F. Labisky—*Ill. Natural Hist. Survey, Biol. Notes* No. 40, 11 p., illus., paper, free upon request direct to publisher, Urbana, Ill. Describes effective way of capturing wild animals for the purpose of marking them for ecological studies.

THE ONE-PARENT FAMILY—Anna W. M. Wolf and Lucille Stein—*Public Affairs Committee*, Pamphlet No. 287, 28 p., illus., paper, 25¢. A joint publication with the Child Study Association of America.

REPORT OF THE FLUID FUEL REACTORS TASK FORCE to the Division of Reactor Development, U.S. Atomic Energy Commission—*Off. of Tech. Serv.*, 188 p., paper, \$1.75. Critical evaluation of three fluid fuel reactor concepts under development by the AEC.

(Continued on page 222)

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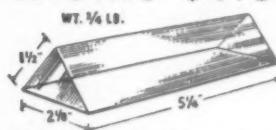
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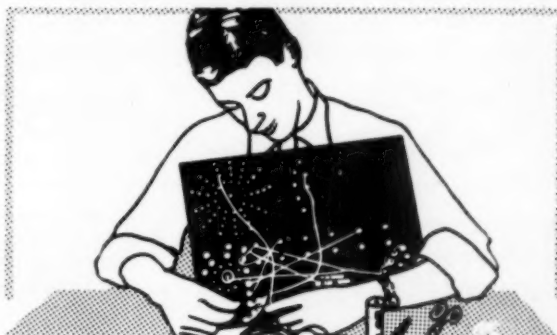
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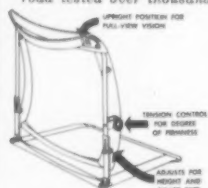
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Books of the Week

(Continued from page 220)

REPORT OF THE NATIONAL CONFERENCE ON THE LEGAL ENVIRONMENT OF MEDICAL SCIENCE, May 27-28, 1959—National Soc. for Medical Research, 114 p., paper, \$2.50. Papers and committee reports on legal aspects of autopsies, transplantations and animal experimentation.

REPRODUCTION IN DOMESTIC ANIMALS, Vol. II—H. H. Cole and P. T. Cupps, Eds.—Academic, 451 p., illus., \$13. Reference volume written by experts on the biochemistry of semen, techniques of semen collection and insemination, effects of nutrition and other environmental factors, and reproduction in domestic fowl.

ROCKETS AND EARTH SATELLITES—Patrick Moore—Muller (Sports Illustrated), 144 p., illus., by Patricia Cullen, \$3. British astronomer outlines for the general reader the development of rockets. Bibliography included.

ROCKETS INTO SPACE—Alexander L. Crosby and Nancy Larrick—Random House, 82 p., illus. by Denny McMains, \$1.95. Helps young readers discover how rockets work and what space travel means.

ROUND THE MOON—Jules Verne—Associated Booksellers, Fitzroy ed., 189 p., illus., \$3. Reprint of book with short appendix by I. O. Evans, commenting on the various chapters in the light of modern science.

STRATEGY IN THE MISSILE AGE—Bernard Brodie—Princeton Univ. Press, 423 p., \$6.50. A Rand Corporation project, reviewing the development of modern military strategy, considering such problems as civil defense, limited war, deterrence, missile bases and the use of nuclear weapons.

TEACHING WITH RADIOISOTOPES, Based on Materials Submitted by Teachers in Many Schools and Colleges—Harold A. Miner, Robert W. Shackleton and Fletcher G. Watson, Eds.—AEC (Govt. Print. Off.), 60 p., illus., paper, 40¢.

THE TWO CULTURES AND THE SCIENTIFIC REVOLUTION: The Rede Lecture 1955—C. P. Snow—Cambridge Univ. Press, 52 p., paper, 75¢. Novelist-scientist focuses on the gap between scientists and non-scientists.

YOUR SCIENCE FAIR (An Opportunity for Youth, A Guidebook to Successful Science Fairs)—Arden F. Welte, James Dimond and Alfred Fried—Burgess, 103 p., illus., paper, \$2.75. Describes types and organizations of science fairs, how to get ready for them, and offers sampling of outstanding projects and exhibits in the past.

Science News Letter, October 3, 1959

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DOUBLE-FACED REFLECTOR, measuring $3\frac{1}{4}$ inches in diameter, can be attached to trees, posts, mailboxes and similar objects. By reflecting an oncoming car's headlights, the reflectors warn motorists that the road turns or ends, thereby helping to protect your property. Made of plastic lucite, this offset reflector is visible from either side.

Science News Letter, October 3, 1959

MORTISE PANIC EXIT DEVICE for use on fire doors permits a door to be opened at light pressure on the horizontal bar. The assembly is designed to prevent fire doors from springing open in an emergency, perhaps abetting the spread of fire. Its screws, springs and other critical parts are protected from heat by the door itself.

Science News Letter, October 3, 1959

DRY SHAVER works on a rechargeable storage cell and consequently needs no batteries or electric cords. It gives from 14 to 18 shaves on one charge from any 110V or 220V AC electric outlet. Two bulbs within the shaver's translucent rim light the face of the user.

Science News Letter, October 3, 1959

HAND REST for home manicures, shown in the photograph, fits on lap or



chair arm. Its handle doubles as the finger rise. Box-like compartments in front hold bottles while unit is in use. A long narrow trough stores nail files, emery boards and orange sticks. The device is made of ivory plastic.

Science News Letter, October 3, 1959

CONSTRUCTION KIT consists of colored wooden sticks of various lengths and rubber joints. Designed for children, home craftsmen, and amateur scientists, the kit can be used to make three dimensional

models of anything from solar systems to molecular structures.

Science News Letter, October 3, 1959

POWER DRILL SERIES of seven units feature pistol-grip or spade-grip handles at buyer's preference. The new line of home, farm and industrial drills come in $1/4$ -, $3/8$ -, and $5/16$ -inch sizes. Standard features include aluminum case, 3-conductor cord (for grounding case) plus adapter, momentary contact switch with locking pin for continuous duty and AC-DC motor.

Science News Letter, October 3, 1959

LEATHER-COVERED TV, with 17-inch tube, is compact and portable. Measuring about $14\frac{1}{2}$ by $21\frac{1}{2}$ by 8 inches, the television cabinet is cloaked in tan-colored California saddle leather attractively saddle stitched. A light shield is said to enhance viewing under all light conditions.

Science News Letter, October 3, 1959

SPORTSMAN'S KNIFE is an adaptation of a Swiss army officer's knife. Made of stainless steel, the knife has a sharp spike, a regular and an Allen-head screwdriver, a large and small blade, a bottle opener, a can opener, and means for scraping, stripping and bending wire.

Science News Letter, October 3, 1959

Nature Ramblings

By HORACE LOFTIN

THE COACHWHIP snake slithered at full speed across the pavement, but the young man was catching up. The race was over, as he grabbed the six-foot serpent by the tail to sling it between his legs where he caught it as in a vice. He pulled the snake back through his legs until only its neck appeared. This he caught in his free hand and the snake was his!

This is a picture of the amateur herpetologist at his hobby. While the means of capturing specimens is not always so dramatic, the thrill of the hunt and capture is a very special part of the fun of reptile and amphibian study. Equally as exciting to the "herp" is the finding of reptiles and amphibians not seen by him before or the establishing of new records of species for his home region. The collector also always has the chance of learning new things about the habits of his favorite creatures by watching them in captivity.

Technically, herpetology is the study of

Herp Talk



reptiles, snakes, lizards, crocodilians and turtles. In time, however, the term has come to include the amphibians as well such as the frogs, toads, salamanders. To make matters simpler, the experts coined the word "herp" for both kinds of animal, and this of course was soon shortened to "herps." It was not long before the herpetologists began calling one another "herps" too.

An amateur "herp" is as excited by his cold-blooded creatures as any bird watcher is by his feathered favorites. The "herp" is

quick to rise in their defense. Unless he is a bird trapper and bander, the bird student rarely has an opportunity to hold his bird, examine it at close range for a long period of time, or to perform simple experiments on its behavior.

The insect and the shell collectors rarely are able to keep their specimens alive for long.

On the other hand, the "herp" almost always takes his specimens alive for close examination. If he chooses to, he can easily keep them for weeks or months in simple cages under almost natural conditions.

The amateur has long ago learned that the vast majority of snakes are quite harmless. Lizards, frogs and the like are seen for what they are: beautiful creatures which fit into the pattern of living things and are worthy of attention and study. The amateur's curiosity is attracted by their habits; his competitive spirit is challenged by their variety and numbers. In seeking out his favorite animals, the "herp" comes to know more about the world of nature in general.

Science News Letter, October 3, 1959

